A detailed example of statistical analysis using the NELS:88 data file and ECB, to perform a longitudinal analysis of 1988 8th graders in the year 2000:

SPSS and AM statistical software example.

Overall process in example:

I.a. Select appropriate ECB for analysis (N2P, N4P, or N0P).

I.b. In NELS ECB: Select variables of interest– and use the ECB to create SPSS syntax for extracting the data off of the NELS CD.

II. In SPSS: Using the syntax file, bring the data into SPSS from the CD. Clean up the data, set missing values, recode variables, and save data to hard drive.

III. In AM: Import the SPSS cleaned up data file. Set design variables, and perform analyses.

Performing statistical analyses in AM computes estimates, standard errors, and significance tests while taking into account the complex sample design of the NELS data. While AM (or similar survey analysis software like Stata, Sudaan, WesVar, etc.) can take into account the design variables, more general statistical software programs cannot (eg. SPSS).

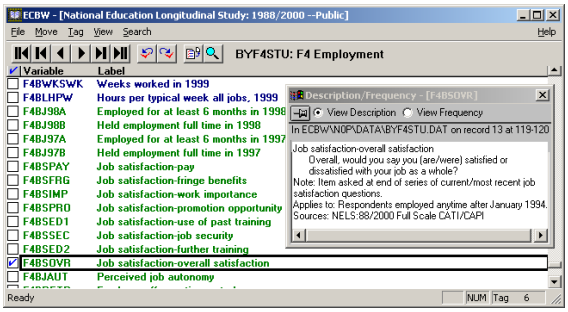
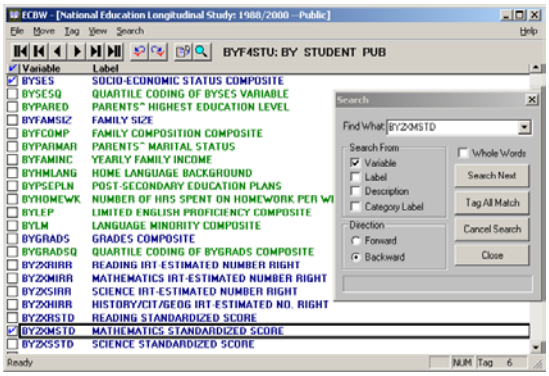
AM software, updates, and patches are available for free download from the AM website: http://am.air.org

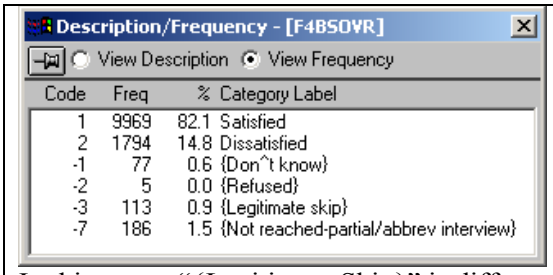
To receive a free copy of the NELS:88/94 CD, and/or the NELS:88/2000 CD please email the NELS:88 contact persons listed on the website http://www.nces.ed.gov/surveys/nels88/

Disclaimer: The statistical methods used in this example are for illustrative purposes only, and may not be appropriate for your analysis.

NELS Step-by-Step Example (using the N0P ECB, SPSS and AM statistical software)
Longitudinal Analysis of 1988 8th graders in the year 2000

Example Research Question: Are 8th grade math test scores in 1988 good predictors of overall job satisfaction in the year 2000? (After controlling for SES and sex).

General Instructions	Example Specific Instructions
I. Using the NELS ECB (electronic codebook) Pre-variable extraction decisions: - N2P electronic codebook (ECB) should be used if using variables only from 1992 or earlier (i.e. from the times when most students are in 8th and/or 10th and/or 12th grades). - N4P ECB should be used if using variables only from 1994 and earlier. - N0P ECB should be used if using variables only from 2000 and earlier.	 N2P N4P N0P This example uses variables from 8th grade and from the year 2000. Therefore, the variables will be extracted from the **N0P** electronic codebook (ECB), which contains the year 2000 responses.
Variable Extraction Steps: 1. Select variables in the ECB: (more detailed help is available in the ECB). Click with the mouse to put check marks in the boxes of the variables to be analyzed. (This is called tagging the variables). Note: You can look at descriptions and frequencies of the variables in the ECB by double-clicking on them.  Look at the "Applies To" descriptions of variables. For example, F4BSOVR: this question only applies to respondents employed anytime after January 1994. Therefore "{Legitimate skip}" includes those who have not been employed anytime after January 1994.	Select these variables in the N0P ECB: Independent (predictor) variable: • BY2XMSTD: Standardized math test scores in 8th grade Control variables: • BYSES: Socio-economic status composite • F4SEX: Gender Dependent (outcome) variable: • F4BSOVR: Overall Job Satisfaction You can search for variables by using the search tool (on end with magnifying glass):  Select variables by clicking on the box next to the variable you wish to select. This puts a checkmark in the box.



In this case a "{Legitimate Skip}" is different from the other 3 missing values, for which we have no information.

2. Tag all the variables needed, including the design variables.

- Make sure to tag the appropriate Weight for the analysis.

There are different Weights in the ECB for various cross-sectional (i.e. one point in time) and panel (i.e. longitudinal) analyses. These weights are described in the NELS ECB, as well as the Quick Guide, and User Manual.

- Also tag the strata variable:
"SSTRATID" in N2P and N4P / or
"STRATUM" in N0P

- And tag the PSU (i.e. cluster) variable:
"SCH_ID" in N2P and N4P / or
"PSU" in N0P

- If using N2P or N4P, and <u>not</u> using the 1988 8th grade cohort as the population you are generalizing to, you will need to generate the strata and psu design variables from the students' ID number once the data is in SPSS. (The syntax to do this is in the SPSS section below)

<u>Select the design variables:</u>

The predictor variables are from 8th grade, and the outcome variable is from the year 2000. Therefore we are using the N0P ECB, and we will use the weight:

- F4BYPNWT: Panel weight, BY, F4 (1988 and 2000).

Strata variable:

- STRATUM: Sampling stratum

PSU:

- PSU: Primary sampling unit

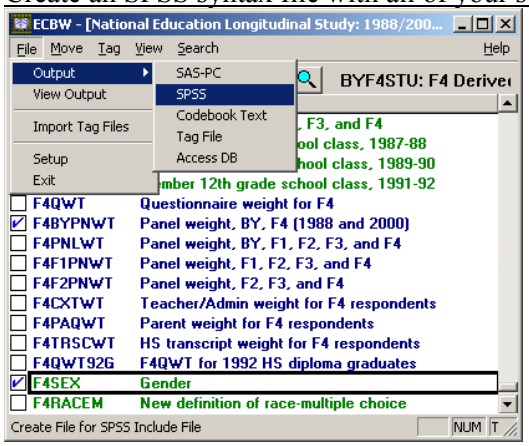
3. Have the ECB create an SPSS syntax file for you.

- This syntax file will have the locations, variable labels and value labels for all your selected variables. This syntax file will allow SPSS to get the data off of the NELS:88 CD and label it for you (as outlined in section II).

- Go to the menu: File | Output | SPSS
You will now be in the ECB's folder.

- Type in a filename ending in *.sps* and click SAVE.

<u>Create an SPSS syntax file with all of your selected variables:</u>



- This will save an SPSS syntax file to the directory you indicate (and this syntax file will be used from within SPSS to extract the data from the NELS CD in the next section).

- A window will pop up asking if you want to label reserved code. Click the button to label "All" in order to get all the value labels.

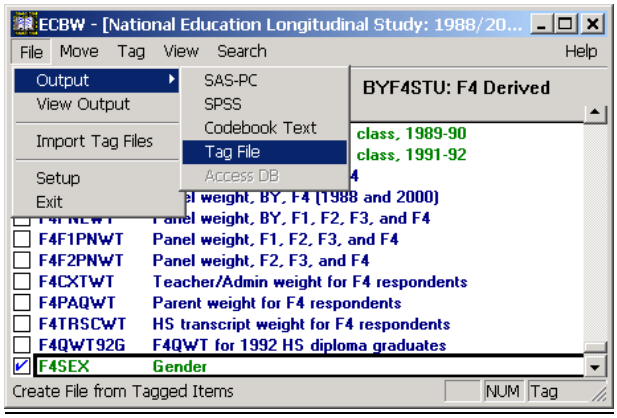
For this example, type the filename *example1.sps* and click the "Save" button.
This will save the file into the folder:
C:/ECBW/N0P/example1.sps

When the window pops up asking if you want to label the variables, click the button "All".

You have now created an SPSS Syntax File with all the variables that you selected in the NELS:88 ECB and are done with the ECB section of this process.

However, before proceeding onto the SPSS steps, you may wish to save your Tagged file. This is a good idea, as it makes this procedure easier later if you find you want to add variables to the current selection.

This is done by clicking on the menu:
File | Output | Tag File



Save the *.tag* file in the desired folder.

This file can re-tag the variables you have checked now, at a later time. This makes it easy to tag a few more variables if you need to add them.

To re-tag your variables (when there are no variables tagged in your ECB), click the menu:
File | Import Tag Files

You will be able to browse to find the Tag file you saved, and open it to re-tag your variables in the ECB.

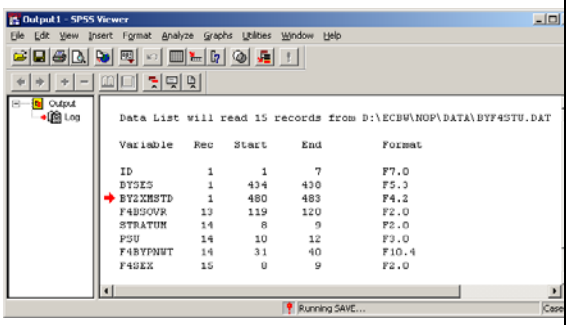
II. Using SPSS to import and clean up the NELS data.

1. Start the SPSS program, and import data into SPSS.

- Open the syntax file you just saved using:
File | Open | Syntax
(you may need to find the folder you saved the file into.)

- Make sure the syntax file looks correct, and that the NELS CD that corresponds to the ECB you are using is in your drive.

- Run the SPSS syntax file. You will see the number of cases increasing at the bottom of your output screen as SPSS extracts the data from the CD onto your hard drive. When the import of the data is complete, frequency and descriptive statistics will be output.

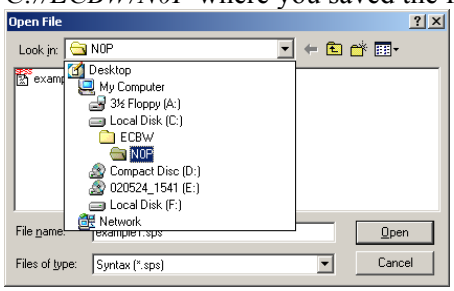


Make sure there are no error messages.

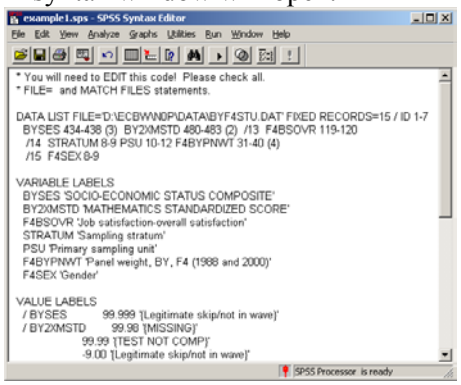
Importing the NELS data from the CD into SPSS (and your hard drive).
(Note: This example was created using SPSS v.11)

Start SPSS.
Once SPSS is open click the menu:
File | Open | Syntax

Find the folder:
C://ECBW/N0P where you saved the file *example1.sps.*



Click on the *example1.sps* file, and click the "Open" button.
A syntax window will open:



Run this file by clicking on the menu:
Run | All

(or you can just run a section by highlighting that section and clicking on the menu:
Run | Selection)

- Wait while the data is read into SPSS from the CD, and saved on your hard drive. You will see the number of cases increasing at the bottom of the SPSS Output window.

The data is now extracted and saved as: C:\ECBW\N0P\X1 on your hard drive!

Note: If using N2P or N4P, and not using the 1988 8th grade cohort as the population you are generalizing to, you will need to generate the strata and psu design variables from the students' ID number. The left-most 2 digits (out of 7) of the student ID are the strata, and the next 3 digits (i.e. the middle 3 out of 7) are the psu indicators. This SPSS syntax can be typed in and run in order to generate these strata and psu variables:

Syntax to create STRATA and PSU variables from student ID if necessary:
COMPUTE strata = TRUNC(id/100000) .
EXECUTE .
*COMPUTE psu = TRUNC(id/100) – (1000*strata) .*
EXECUTE .

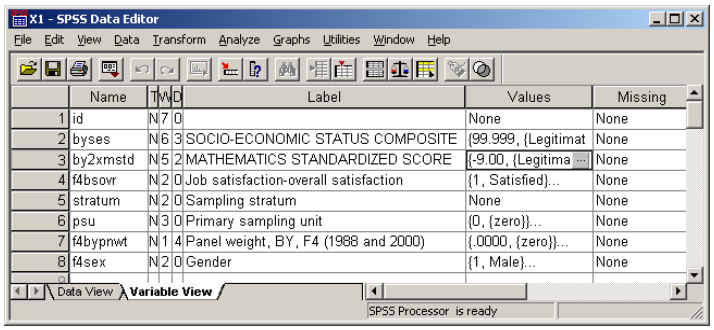
2. Set missing values

- Click on the "Variable View" tab near the bottom of the SPSS Data window.

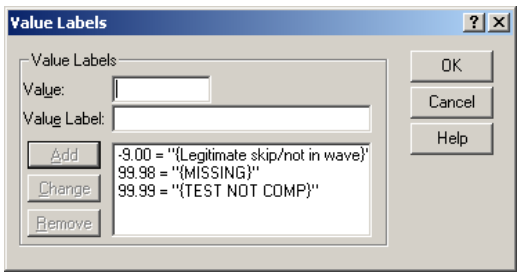
- For each variable click on the "Values" box, and click on the gray square that appears. Decide which of the listed values, if any, you wish to set to missing.

- Click cancel to close this window. (This "Values" window does not set the missing values – it only shows what the value labels are. The method for setting the missing values follows).

<u>Look at Value Labels (to figure out what missing values to set):</u>



Click on the "Values" box for BY2XMSTD – a gray box will appear. Click on this gray box to see these value labels:



Remember, or write down, these three values listed so that we can set them as missing. Click "Cancel".

- Click on a variable's "Missing" box, and click on the gray square that appears.

- Enter the numbers to be set as missing values for this variable.

- Repeat, selecting missing values from the "Values" box, and entering them in the "Missing" box for each variable.

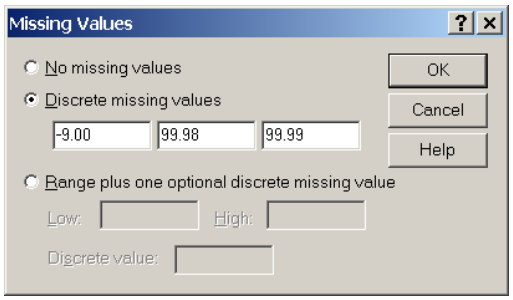
- When finished setting missing values, you may wish to re-run frequencies or descriptive statistics for all variables, to make sure the missing values have all been set properly.

<u>Set the appropriate Missing Values so that SPSS no longer reads them as valid data.</u>

Click on the "Missing" box for BY2XMSTD – a gray box will appear. Click on this gray box to open the Missing Values dialog window.

As the "Value Labels" box showed what values should be treated as missing, now set them in the "Missing Values" dialog window:

Here is how to set BY2XMSTD values of -9, 99.98, and 99.99 to missing:



Click "OK"

Now SPSS recognizes that –9, 99.98, and 99.99 are not valid values for the BY2XMSTD variable, but are missing values.

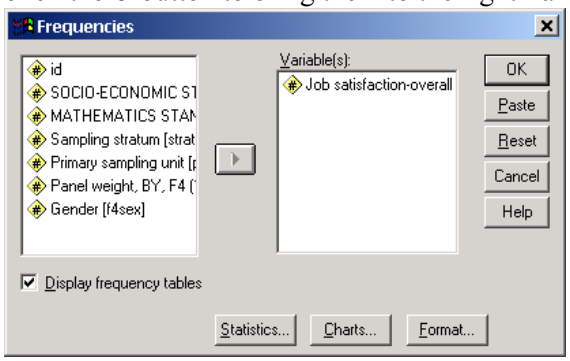
Also set missing values for:

a. BYSES: 99.999
b. F4BSOVR: -7 to-1

Extra check:

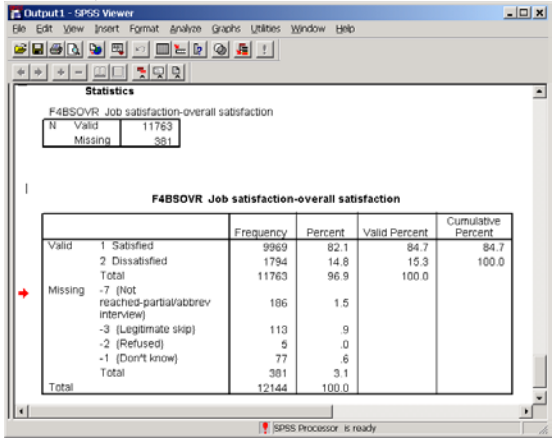
When the recoding is completed, descriptives and frequencies can be run to make sure the recoding worked.

For example, to look at the frequencies of the categorical F4BSOVR variable, go to the menu:
Analyze | Descriptive Statistics | Frequencies
Select the variable that missing values have been set for, and click the υ button to bring them to the right-hand side:



Click "OK" to run the frequencies.

You should see a separate section for the "Valid" values and the "Missing" values (the latter should now include all the values you set as missing).



3. Recode variables

Categorical variables can be recoded for a variety of reasons. For example, it may be to collapse categories, to re-order categories, or to give different values for analysis reasons (eg. dummy coding, or setting a binary variable to 0,1 for a logistic regression).

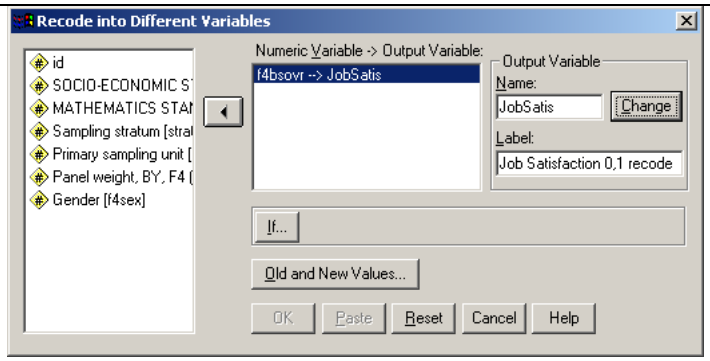
Recoding can be done using the menu (only available in the data window):
Transform | Recode | Into Different Variables

Recode: F4BSOVR to be 0,1 (from of 1,2) for a logistic regression

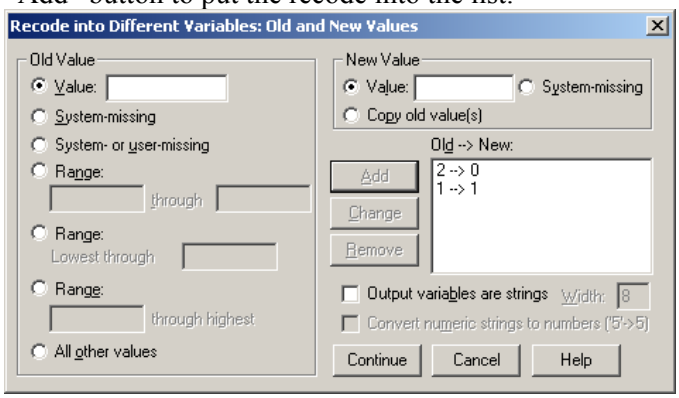
The following steps will show how to recode the variable "F4BSOVR" into a new variable "JobSatis", with the following recoding of values:

F4BSOVR Old Value		JobSatis New Value
(2)	→	0 = Dissatisfied
(1)	→	1 = Satisfied

- Go to the menu:
Transform | Recode | Into Different Variables
- Select the variable to be recoded.
- Type the name of the variable you would like the recoded variable to be.
- Click "Change" button.
- Click "Old and New Values…" button.
(see picture on next page)



- Enter the original variable value(s) and the recoded value, and click the "Add" button to put the recode into the list.



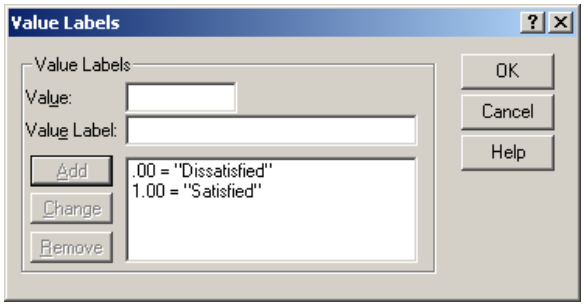
- Click "Continue"
- Click "OK" in original window to create recoded variable.

You will now see the variable "JobSatis" included as your last variable in your data window.

4. Add Value labels for the recoded variable:

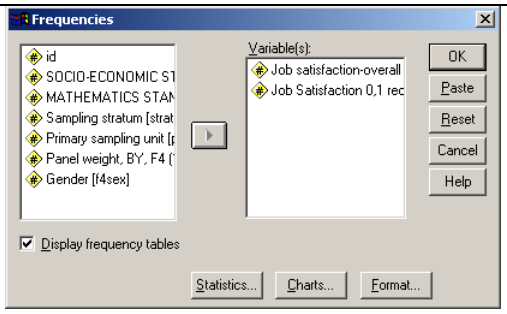
In the data window, the "Values" box will be blank for any new variables you create. You can add Value Labels by clicking on the "Value" box of the variable you wish to assign values to. Then click on the gray box that shows up to get the Value Labels dialog box that allows you to add, delete, or change the value labels for that variable.

<u>Add Value Labels</u>
- Go to the SPSS data window under the Variable View tab.
- Click on the variable's "Values" box.
- Click on the gray box that shows up, and a window will pop up.
- Add Value labels.



<u>Extra check:</u>
When the recoding is completed, frequencies can be run to make sure the recoding worked:
Go to the menu:
Analyze | Descriptive Statistics | Frequencies

Select the new and old variable, and click the υ button to bring them to the right-hand side:



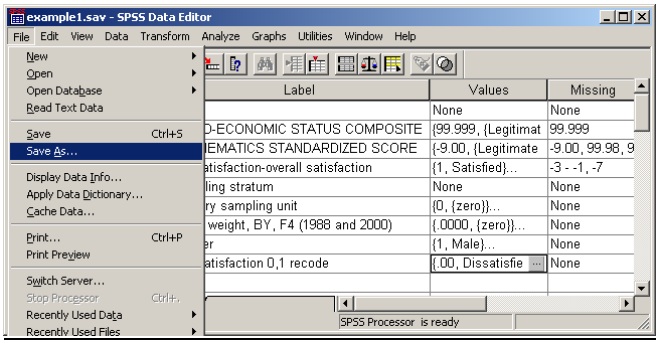
Click "OK" to run the frequencies.
The two variables should have the same frequencies for "Satisfied" and Dissatisfied".

5. <u>Save this modified data file:</u>

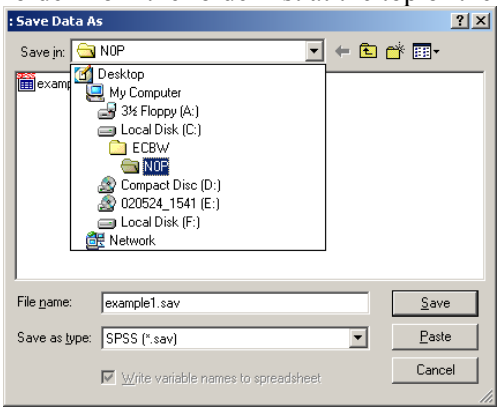
The menu:
File | Save As…
allows you to save your data, with all modifications (eg. new variables, recodes, missing values set, and variable labels).

<u>Save this SPSS data file as example1.sps</u>
Save this data file, with all the indicated missing values and recodes.

- Go the menu: File | Save As…
- Find the desired folder and enter a filename for this modified data file.
- Click "Save"



To save it in the N0P folder (or another one), you may need to select the folder from the folder list at the top of the "Save Data As" window:



Save the SPSS data file as: *example1.sav*

Your file is now saved in:
C://ECBW/N0P/example1.sav

The SPSS data file is now modified and saved as designated on your hard drive!

It is recommended that the SPSS data file be closed before attempting to import it into the AM data analysis software.
However keeping SPSS open in order to be able to review the output results may be useful for comparison purposes.
Therefore, clicking on the menu: File | New | Data
is suggested to close the data file, while keeping the SPSS program open (including the output file).

III. Using the *AM* statistical software for NELS data analysis.

1. Start the *AM* program, and import data into *AM*.

- To start AM, click the "Start" button on the MS Windows bar, click on "Programs", click on "American Institutes for Research", and click on "AM".

-The AM program will open. You can click on the introductory "AM for data analysis" window to make it disappear – or it will disappear on its own after a few seconds.

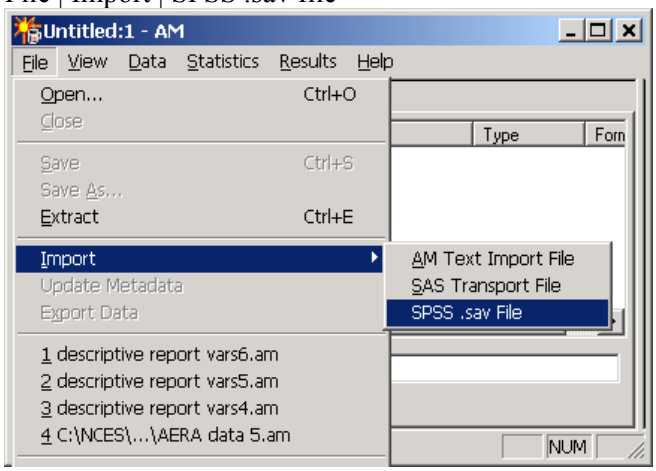
- Import the SPSS data file you just saved using the menu:
File | Import | SPSS .sav file

Find the file in the folder you just saved your SPSS data set into. Click "OPEN".

The file should now be saved as an AM data file by clicking the menu:
File | Save As…

The filename should have an *.am* extension.

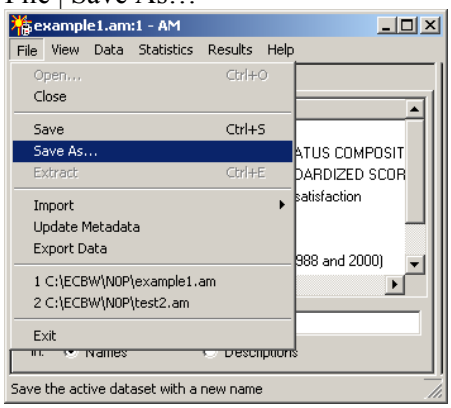
Import the SPSS data file you just created into AM by clicking on:
File | Import | SPSS .sav file



Find and select the SPSS data file *example1.sps* in the C:/ECBW/N0P folder, and click the "Open" button.

When the SPSS file is imported, you should see all variables names and descriptions listed.

Save this imported SPSS data file to AM format by clicking on the menu:
File | Save As…



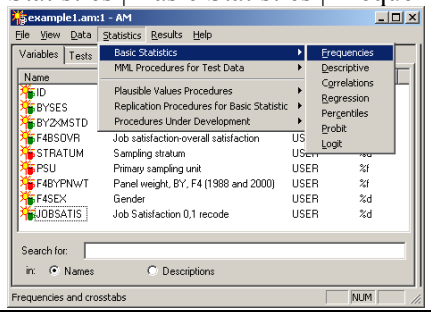
Save the file as *example1.am* in the C:/ECBW/N0P folder.

2. Confirm that the Import worked properly by running frequencies and/or descriptives before continuing.

Only a "column variable" is used for an overall frequency.

Note 1: AM frequencies are reported in terms of proportions, while SPSS frequency output is reported in terms of percentages. Proportions are the same as percentages, but with the decimal moved 2 places to the left.

Check that the data file imported properly into AM:
For example: to confirm that the variable *JobSatis* was brought in properly, run frequencies from menu:
Statistics | Basic Statistics | Frequencies



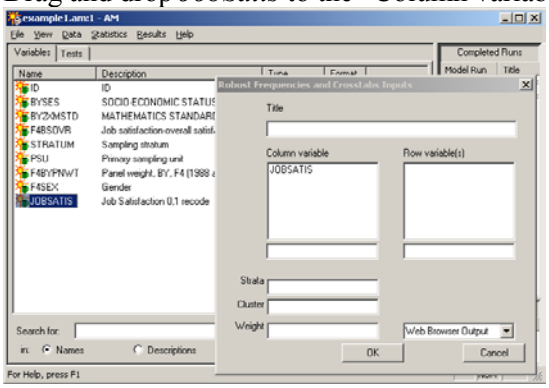
Note 2: After running "Frequencies" in AM, the program outputs proportions. Return to the main AM window, and the results of the Frequency analysis that was just run should now be visible in the right box under the "Completed Runs" heading. Right click on the Frequency analysis. A menu shows up allowing further analyses with the variables used in the Frequency analysis – such as T-Tests.
(See picture in right column for menu options).

Note 3: About design variables:
The AM and SPSS cell sample size results are the same if they are both run unweighted. Once the data is weighted in AM, the proportions will change to accommodate the probability of each subject's selection. Also, the cell sample sizes in the "Show Totals" option (available by right clicking on the Frequency analysis) will change to be weighted up to the population sample size.

The other design variables, STRATA and PSU, do not affect the estimates, but they do affect the sizes of the standard errors, and therefore significance tests. For more details refer to the AM Help:
Help | Help Topics
In the *Table of Contents*, click on the folder: "Sampling".
The "Sample Design" and "Sampling Weights" documents give overviews, some details, and references.

For more NELS specific information on these topics, the NELS User Manuals at:
http://nces.ed.gov/surveys/nels88
explain the NELS complex sampling design in detail.

Drag and drop *JobSatis* to the "Column variable" box.

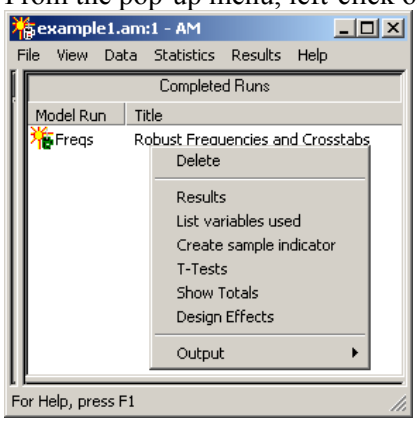


You have a choice of output types:
Web Browser, Spreadsheet, or Plain Text. The 'Web Browser Output' tends to have the best on-screen formatting, so you may wish to leave it. Click "OK".
Results should be the same as SPSS percentages (except AM outputs proportions instead of percentages):

Observations: 11763
JobSatis: Job Satisfaction 0,1 recode

Dissatisfied	*(se)*	*Satisfied*	*(se)*
.153	.0033	.847	.0033

Go back to the main AM window.
Right-click on the "Frequencies" analysis.
From the pop-up menu, left-click on "Show Totals".



Cell sample sizes will output to the browser window below the initial output (you may have to scroll down to see it. These cell sizes should also be equivalent to the SPSS results:

Observations: 11763
JobSatis: Job Satisfaction 0,1 recode

Dissatisfied	*Satisfied*
1794	*9969*

Run the frequencies for the other variables and compare AM frequencies to SPSS output.

3. Set your design variables' role

- Right click on your Strata variable
- From the pop-up menu select "Edit Metadata"
- Click the radio button in front of "Strata" so the black dot appears there.
- Click "OK"
- Now the variable icon (a coffee cup) appears in red to the left of the Strata variable.

- Right click on your PSU (cluster) variable
- From the pop-up menu select "Edit Metadata"
- Click the radio button in front of "PSU" so the black dot appears there.
- Click "OK"
- Now the variable icon appears in red to the left of the PSU variable.

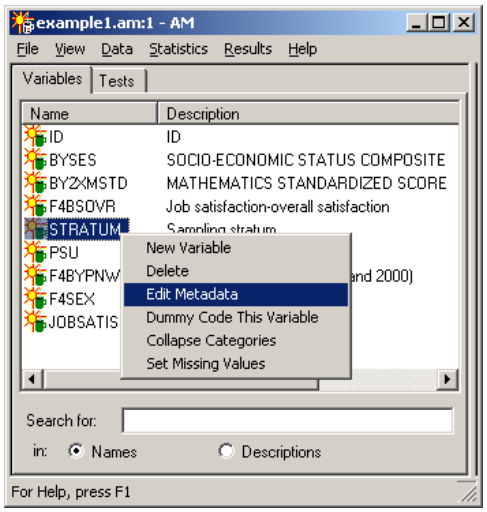
- Right click on the appropriate Weight variable.
- From the pop-up menu select "Edit Metadata"
- Click the radio button in front of "Weight" so the black dot appears there.
- Click "OK"
- Now the variable icon appears in red to the left of the Weight variable.

There should be three design variables with red coffee cup icons to their left after all the design roles have been set.

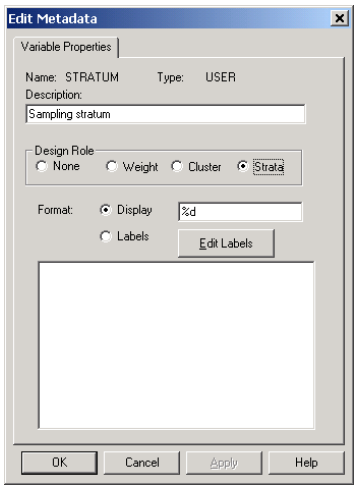
<u>Set the design variables:</u>

- Set the STRATUM variable to have the strata design role in AM:

Right click on the variable STRATUM.
Click on "Edit Metadata" in the menu.



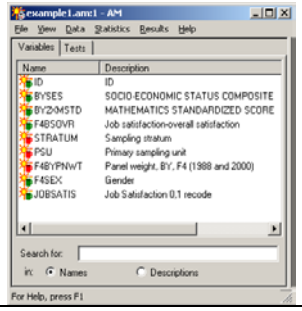
Click on the radio button in front of "Strata".

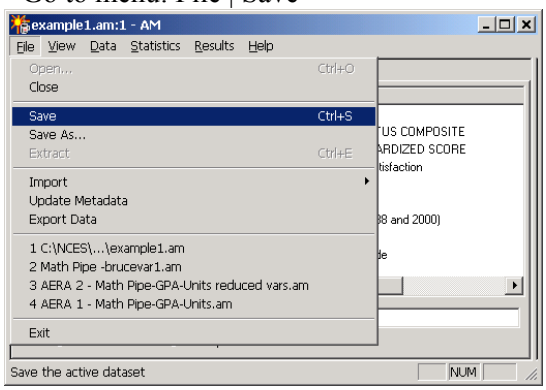
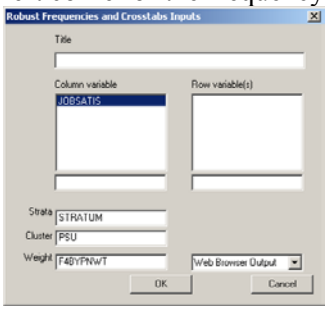


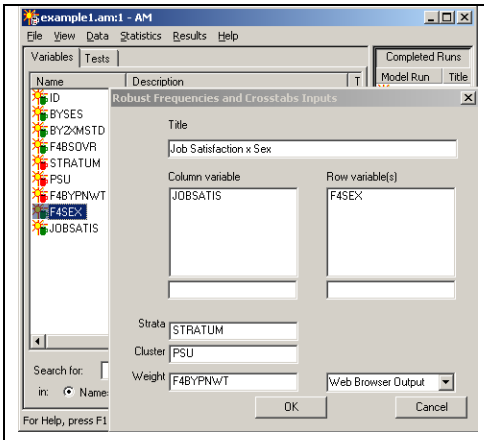
Click "OK" to set STRATUM variable to have the strata design role.

You should now see the variable icon (a coffee cup) in red to the left of the STRATUM variable.

- Do the same thing but indicating:
PSU as the 'Cluster' design variable, and
F4BYPNWT as the 'Weight' design variable.
All three should now have a red coffee cup icon in the AM variable list.



4. Save modifications to an AM data file - To save the modifications to the same AM file, in the AM main window go to menu: File | Save Your modifications will be saved to the original file. -If you wish to save modifications to a new file, go to menu: File | Save As and type in a new filename. Your modifications will be saved to a new file.	<u>Saving the modifications to the same AM data file:</u> - Go to menu: File | Save  - The modified file, with all design variables set in their design roles, will now be saved to: *C:/ECBW/N0P/example1.am*
5. Perform a frequencies analysis with the survey design taken into account in the same way as the unweighted frequency analysis was performed above. However, now that the design variables are set, the estimates will be weighted, and the standard errors and significance tests will be adjusted for the Clusters (PSU) and Strata. - Frequencies can be run by clicking the menu: Statistics | Basic Statistics | Frequencies - The design variables should automatically appear in their respective boxes in the lower left corner of the frequency window.  	<u>Re-run frequencies on the *JobSatis* variable with design variables set.</u> Run "Frequencies" on *JobSatis* the same way as described previously in Part III, Section 2 of this example. <u>Now, since *JobSatis* is weighted</u>: - It has different proportions from when it was unweighted - The number of observations is reduced to include only those with a F4BYPNWT>0 - The Weighted N is now increased to the Spring 1988 8th grade cohort population size in the year 2000 (nearly 3 million). - The standard errors are also adjusted for the Clusters (PSU) and Strata, and are now somewhat larger than before the design variables were set. *Observations: 11050* *<u>JobSatis: Job Satisfaction 0,1 recode</u>* *Weighted N: 2,813,533* *Dissatisfied (se) Satisfied (se)* .176 . 0082 .824 .0082 <u>Just for fun:</u> "Show Totals" by right-clicking on this Frequency analysis in the Completed Runs window, and click on "Show Totals". The total sample sizes for each group should be equal to the proportion of the Weighted N in that group.
6. Perform a crosstab - Run the "Frequencies" statistical analysis as above, but for crosstabs, both row (independent) and column (dependent) variables are used. - You can also type in a title for the analysis run. (See graphic next page)	<u>Perform a crosstab of Job Satisfaction by Sex</u> Click on menu: Statistics | Basic Statistics | Frequencies Drag two variables into the box to cross with each other: - Col (dependent): *JobSatis* - Row (independent): *F4SEX* Type in the title for the analysis "Job Satisfaction x Sex" Click "OK"



<u>Output:</u>

Observations: 11,050

Gender	*Weighted N*
Male	*1,402,615*
Female	*1,410,918*

Gender	*Dissatisfied*	*(se)*	*Satisfied*	*(se)*
Male	*.156*	*.0126*	*.844*	*.0126*
Female	*.196*	*.0106*	*.804*	*.0106*

7. Perform a descriptive analysis

-Click on menu:
Statistics | Basic Statistics | Descriptive

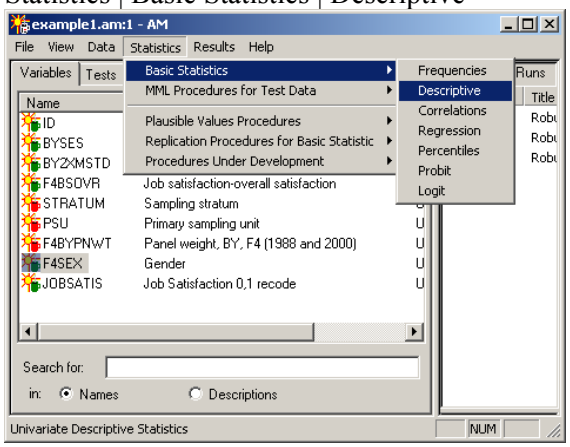
- Drag the continuous variables into the dependent variable box to get the descriptive statistics for each.

- To get descriptive statistics by groups, drag a grouping variable into the independent variable box.

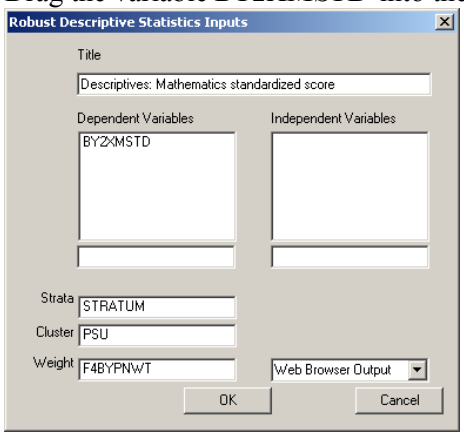
- Again, you can also type in a title for the analysis run.

<u>Perform a descriptive analysis of continuous variable: Mathematics Standardized Score</u>

Click on menu:
Statistics | Basic Statistics | Descriptive



Drag the variable *BY2XMSTD* into the dependent variables box



Click "OK"

<u>Output:</u>

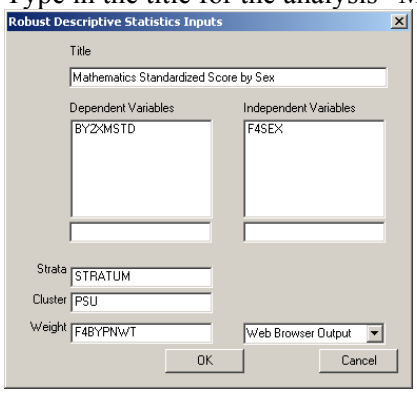
Observations: 10,965
Weighted N: 2,793,165
BY2XMSTD

Mean	*SE*	*SD*	*Min*	*Max*
50.549	*0.269*	*10.118*	*34.090*	*77.200*

<u>Perform a descriptive analysis of Standardized Math Test Score by Sex</u>
Click on menu:
Statistics | Basic Statistics | Descriptive

Drag two variables into the box to cross with each other:
- Dependent (continuous): *BY2XMSTD*
- Independent (categorical): *F4SEX*

Type in the title for the analysis "Mathematics Standardized Score by Sex"



Click "OK"

<u>Output:</u>
Observations: 10,965
MATHEMATICS STANDARDIZED SCORE by Gender

	Weighted N
Male	*1,394,924*
Female	*1,398,240*

	Mean	*SE*	*SD*	*Min*	*Max*
Male	*50.709*	*0.391*	*10.257*	*34.250*	*77.200*
Female	*50.388*	*0.307*	*9.975*	*34.090*	*77.200*

8. Perform t-test between groups (based on the descriptive analysis by groups just performed)

- Go back to the main AM window.
In the Completed Runs window, right-click on the "Robust Descriptive Statistics" line you wish to perform a t-test on.

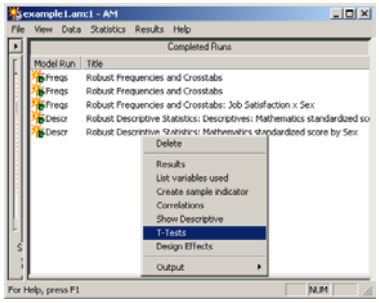
- From the pop-up menu, left-click on "T-Tests".

- A "Perform T-Tests" window will appear.

-The first mean (in yellow) that is clicked, gets a blue box around it. This is now your "anchor" value for comparison to other mean values. (The blue box stays around this anchor value until another click on it releases the box. Then another value can be made the anchor).

<u>Question:</u> Is there a relationship between Mathematics Standardized Scores and Sex that would justify keeping F4SEX in a logistic regression as a control variable?

<u>Perform a t-test comparing the means of Mathematics Standardized Score for Males and Females:</u>
- Go back to the main AM window.
In the Completed Runs window, right-click on the "Robust Descriptive Statistics: Mathematics standardized score by Sex".



- From the pop-up menu, left-click on "T-Tests".

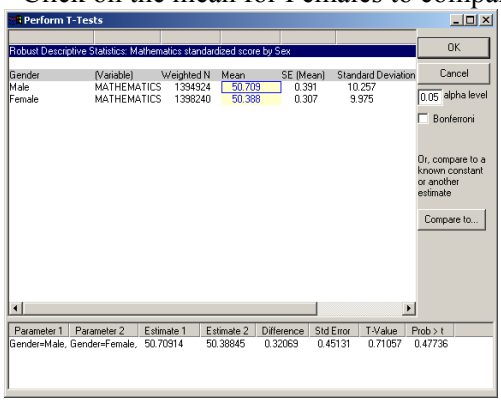
-The second mean clicked on is then compared to the anchor value, and so on.

-The results appear at the bottom of the screen. If highlighted in yellow, the p-value is less than .05. If unhighlighted, then the difference is not significant at alpha = .05.

- A Bonferroni correction can be applied for multiple comparisons.

-Click "OK" to put all mean comparison t-tests into the output window.

- Click on the mean for Males to anchor that value for our comparison.
- Click on the mean for Females to compare it to the mean for Males.



-The results appear at the bottom of the screen. In this case, the result is not highlighted, because the difference is not significant at alpha = .05.

-Click "OK" to put the results of this t-test into the output window.

<u>Output:</u>

Mean of MATHEMATICS STANDARDIZED SCORE

Male 50.709

Female 50.388

Difference	*SE*	*T-statistic*	*p > t*
0.321	*0.451*	*0.711*	*.477*

- Since there does not appear to be a significant difference between Mathematics Standardized Scores for Males and Females, the F4SEX variable will be dropped as a control variable from our logistic regression (which follows).

9. Perform a logistic regression analysis

<u>Note</u>: Variables can be dummy coded as needed. To do this, right click on a variable to be dummy coded, then left click on "Dummy Code This Variable". Type a name for the new dummy coded variable and click "OK". The new dummy coded variables will appear at the bottom of the list of variables.

- Click on menu:
Statistics | Basic Statistics | Logit

- Drag the 0,1 coded dependent variable into the "Dependent Variables" box.

- Drag the independent variable(s) into the "Independent Variables" box.

- Click "OK" to run logistic regression.

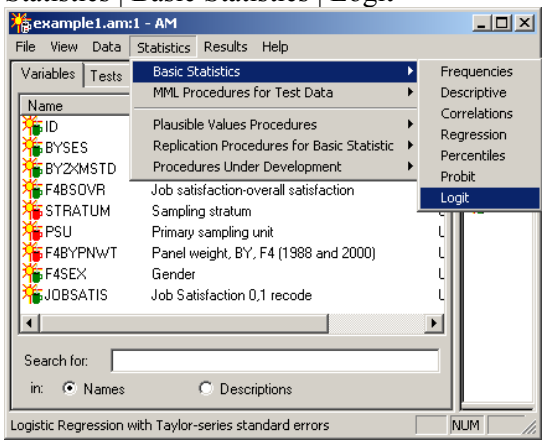
<u>Perform a logistic regression predicting Job Satisfaction with Standardized Math Test Score, controlling for Socio-economic Status</u>

Predictor: *BY2XMSTD*

Control: *BYSES*

Outcome: *JobSatis*

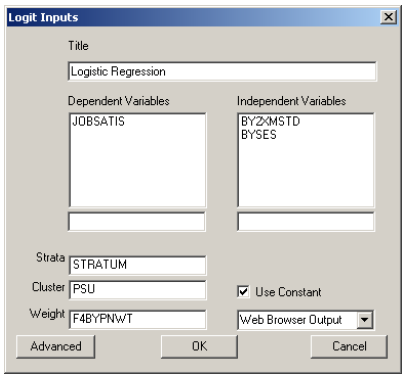
- Click on menu:
Statistics | Basic Statistics | Logit



When reporting results:
- Report the population the results generalize to.

- As the sample sizes in NELS tend to be large, even statistically significant results should be reviewed for practical significance, as very small effects may be statistically significant.)

- Drag *JobSatis* variable into the "Dependent Variables" box.
- Drag the *BY2XMSTD* and *BYSES* variables into the "Independent Variables" box.



- Click "OK"

<u>Output:</u>
Selection: ALL
Observations: 10644
Strata Variable: Sampling stratum
Cluster Variable: Primary sampling unit
Weight Variable: Panel weight, BY, F4 (1988 and 2000)
Dependent Variable: Job Satisfaction 0,1 recode

	Estimate	*SE*	*z-statistic*	*p > |z|*
Constant	*1.273*	*0.330*	*3.861*	*0.000*
Mathematics standardized score	*0.006*	*0.006*	*1.058*	*0.290*
Socio-economic status composite	*0.182*	*0.079*	*2.303*	*0.021*

After controlling for SES, Mathematics Standardized Score is not found to be a statistically significant predictor of Job Satisfaction at alpha=.05.
<u>Population this analysis generalizes to</u>: The 8th grade class of 1988 in the year 2000, for those who were employed anytime after January of 1994.

<u>Final Note about AM statistical software:</u>

Updated versions of AM will be made available (free) from the AM website as they are released:
http://am.air.org

More details about analysis and other available features in AM, are detailed in the AM software's online help, as well as in the <u>AM User Guide</u> available from the AM website. For further assistance with the AM software, and to report bugs, visit the web page's support link.

Note that many more procedures and analyses can be performed in AM than is demonstrated here:
For example:
- Selection of groups from the Data | Filter Observations menu,
- Estimation of a median using Percentiles, etc.
- Multiple regression
- Compute correlations

Also, variables can be manipulated in AM, for example:
- Recoding/collapsing categories
- Edit variable labels and value labels